

REMARKS

In this Amendment, Applicant has cancelled Claims 1 – 13, without prejudice or disclaimer, and has added new Claims 14 – 35. Claims 14 – 35 have been added to further specify different embodiment of the invention. It is respectfully submitted that no new matter has been introduced by the amended claims. All claims are now present for examination in view of the accompanying remarks.

OBJECTIONS TO CLAIMS:

Claims have been objected as generally narrative and indefinite, failing to conform to current U.S. practice.

It is respectfully submitted that newly added Claims 14 – 35 have rephrased certain expressions in compliance with U.S. patent practices. For example, “-ing” form is used to define the method of manufacturing. The pronoun “it” in original Claims 9, 12 and 13 (new Claims 23, 32 and 33) has been deleted. The phrases lacking proper antecedent basis have been rephrased. Accordingly, withdrawal of the objections is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 112:

Claim 13 has been rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is respectfully submitted that in view of the presently claimed invention, the rejection has been overcome. In particular, Claims 9 and 13 have been cancelled. The newly added corresponding Claims 31 and 35 comply with the enablement requirement.

Accordingly, withdrawal of the rejection under 35 U.S.C. § 112 is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 102 (b):

Claims 1, 2, 4 – 7, 9 – 11 and 13 have been rejected under 35 U.S.C. § 102 (b) as allegedly being anticipated by Wessely (US 4,055,133), hereinafter Wessely.

It is respectfully submitted that in view of presently claimed invention, the rejection has been overcome. In particular, Claims 1 and 9 have been cancelled. The newly added Claims 14 and 31 are directed to a method for manufacturing a complex shape structural component with an open cross section, preferably U-shaped, or with a closed cross section, and the product obtained by such method. Wessely essentially discloses a method for triple roll seaming of a flanged end closure to a flanged container body, preferably a circular container such as a barrel or a drum, both flanges being deformed and rolled together radially inwardly around each other until a triple rolled seam is obtained including more than five layers of container body and closure sheet material (col.1, ll.65 to col.2, ll.2). However, Wessely does not disclose a manufacturing method to create a complex-shaped structural component of open cross-section, preferably U-shaped or of closed cross section. In addition, Claims 14 and 31 require that at least one of said metal parts have an elastic limit of more than 400 MPa and low formability. Wessely discloses that the sheet material is conventional (common) sheet steel or plastic such as polyethylene or polypropylene (col. 2, ll.30-32 or col.6, ll.7-9). It is respectfully submits that metal material, especially steel, having an elastic limit of more than 400 MPa and low formability are acknowledged by one of ordinary skill in the art as having very different properties from those of usual common carbon steels as disclosed in Wessely, whose elastic limit is usually lower than 150-300 MPa.

Although Examiner indicates that the elastic limit of more than 400 MPa is a material property inherent to most steels, it is respectfully submits that anticipation by

inherency requires that (1) the missing descriptive matter be necessarily present in the prior art reference and that (2) it would be so recognized by persons of ordinary skill in the art. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). In the present application, the requirement of steel with elastic limit of more than 400 MPa is not necessarily present in Wessely. Furthermore, it is not recognized by persons of ordinary skill in the art that Wessely necessarily require steel with elastic limit of more than 400 MPa.

In addition, rejections to 2, 4 – 7, 10 – 11 and 13 have been overcome due to the above differences which reflected in the newly added Claims 15 – 19, 32 – 33 and 35.

Accordingly, withdrawal of the rejection under 35 U.S.C. § 102 first paragraph is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 103:

Claim 3 has been rejected under 35 U.S.C. § 103, as allegedly being obvious and unpatentable over Wessely. Claims 8 and 12 has been rejected under 35 U.S.C. § 103, as allegedly being obvious and unpatentable over Wessely in view of Ragsdale (US 2,125, 692), hereinafter Ragsdale.

It is respectfully submitted that in view of presently claimed invention, the rejection has been overcome. In particular, Claim 3 has been cancelled without prejudice or disclaimer. Thus, the rejection to Claim 3 is moot.

Applicant respectfully submits that Wessely is non-analogous art and should not be used as prior art in rejection of the present invention. The present invention addresses the technical problem of manufacturing reduced-weight and improved-strength steel structures having possibly a very complex shape. These requirements are especially encountered in the automotive industry for about ten (10) years. It is well-known by one of ordinary skill in the art that such complex shapes are difficult to obtain with the

increasingly used high elastic limit (HEL) and very high elastic limit (VHEL) steels. HEL steels have indeed special mechanical properties, mainly, very high strength (more generally high mechanical characteristics) as well as low formability and possibly poor weldability (see Specification p.2, ¶ 0005). Because of this low formability, such complex structures have to be constructed from a number of parts having simpler shape and produced with very limited deformations (see Specification p.3, ¶ 0011). The problem reduces then itself to assemble these parts together. As mentioned above, welding may be not suitable. It was thus unexpected to solve this problem in a very simple and productive, thus low-cost, manner by using the purely mechanical technique of "crimping" as described in different embodiments of the present invention. HEL steels, whose interest was born in the 1980's, were really intensively used in the last ten (10) years and were either simply not known or probably without much interest for the person skilled in the art at the time the invention of Wessely was made, namely in 1977. The improvement of Wessely to a well-known technique in manufacturing sheet material containers such as drums, barrels, etc., made of common steel or even of plastic, simply aimed at maximize the strength of the seam between an end closure and the container body, minimize the sheet material used and possibly increase the sheet material thickness involved in triple roll seaming (col.1, ll.21-25, l.38 and ll.55-58). It is not taught or suggested in Wessely that the technique would be advantageously applied to special high strength steels to overcome formability or weldability problems. It may thus be thoroughly questioned if Wessely is a suitable prior art for the present invention, as it addresses a technical problem which seems to be quite different from the one solved by the invention. Furthermore, aiming at improving the strength of the assembly disclosed by Wessely, one of ordinary skill in the art, at the time the present invention was made, would certainly not have been prompted to look for special and expensive HEL steels because no weight reduction was required in the field of container manufacturing and usual common steel had to be employed for making round forms, owing to their good ductility.

Regarding rejection to Claim 8, Claim 8 has been cancelled without prejudice or disclaimer. According to the newly added Claim 20, the hem crimping is followed by a

hem blocking to prevent the sliding of the assembled parts along the junction section. The blocking can be achieved by bonding. As recognized by the Examiner, this additional characteristic is not disclosed by Wessely. There is no evidence that Wessely has contemplated to prevent possible sliding of the sheet parts in a longitudinal direction. On the other hand, Ragsdale discloses a "box" beam comprising angular cross-section chord members and web members which are vertically stiffened longitudinally of the beam. This structure is made of relatively narrow sheet metal strips, preferably of high tensile stainless steel, spot welded together (page 1, left col., ll.25-32). Particularly, Ragsdale teaches that the elements have open section parts which may be welded each to the other (page 2, left col., ll.14-16). Thus the teaching of Ragsdale is not of particular pertinence with regard to the present invention as spot welding of ordinary steel girder elements is well-known in prior art. It should further be noted that said elements of Ragsdale's girder are assembled prior to welding along very simple junction sections (see Fig.1, page 1, right col., ll.46-49). Ragsdale does not disclose any assembling by common crimping or crimping at the hem (i.e. with two peripheral metal sheet elements rolled and bent over together and inwardly). Moreover, according to Ragsdale (page 1 left col., ll.50-55), the use of sheet metal strips formed into suitable cross sections and subsequently spot welded is providing extreme lightness and maximum strength. As no positioning or assembling of said sheet metal strips by crimping was contemplated, it is not surprising that the welding of the girder elements was certainly not intended by Ragsdale to overcome possible sliding problems. It should additionally be emphasized that, contrary to the Examiner's assertion, Ragsdale does not disclose that "hems" may be "bonded (i.e. glued) by welding", but that they are solely welded together. Furthermore, Ragsdale's teaching would not have been used by one of ordinary skill in the art at the time the present invention was made, as it was of general knowledge that high elastic limit steels may be of poor weldability.

Regarding rejection to Claim 12, Claim 12 has been cancelled without prejudice or disclaimer. According to the newly added Claim 34 and same reasons stated above, it is unobvious to crimp the hems of the junction section of a metal part having a very high elastic limit and low formability. Therefore, nowhere in Wessely or Ragsdale discloses

these features or provides suggestion or motive to one with ordinary skill in the art to discern the present invention as claimed in Claim 34.

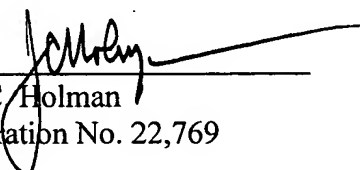
Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §103 be withdrawn.

Having overcome all outstanding grounds of rejection, the application is now in condition for allowance, and prompt action toward that end is respectfully solicited.

Respectfully submitted,

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